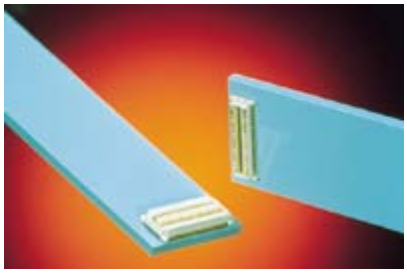
SlimStack™ 0.50mm (.020") Pitch



SlimStack is the new family name for Molex's broad range of Micro SMT stacking board-to-board connectors. The family covers stack heights from 1.50mm (.059") to 20.0mm (.787") in pitch categories of 0.40mm (.016"), 0.50mm (.020"), 0.635mm (.025") and 1.00mm (.039").

SlimStack offers system designers a wide range of flexibility to meet the tight packaging needs found in applications such as PDAs, cellular phones, camcorders, notebook PCs and other compact equipment. Along with various pitch and stack options, the series covers circuit size needs from 16 to 140.

All versions are gold-plated for high reliability over multiple mating cycles. Other features include a durable blade-on-beam contact, SMT tails that create strong solder fillets, and a friction locking feature for added mating retention.

Features and Benefits	
Cantilever-type gold contacts	Reliability under severe shock and vibration
Circuit size range of 16 to 140	High density design flexibility
Metal friction lock	Secure retention against shock and vibration
High-temp LCP housing material	Withstands high-temperature SMT soldering processes
Embossed tape packaging	Automated pick and place
Shrouded plugs and receptacles	Double wall strength for resistance to shock and vibration
Wide angled mating surfaces	Minimizes risk of damage during mating
Shroud ramp/window locks and contact-to-plastic locks	Extra retention between plug and receptacle

Applications

- PDA and PIC
- Digital video camera
- Digital still camera
- Cellular phone
- Personal handy phone (PHS)
- Digital audio player
- Voice recorder
- Notebook PC
- Any low-profile application

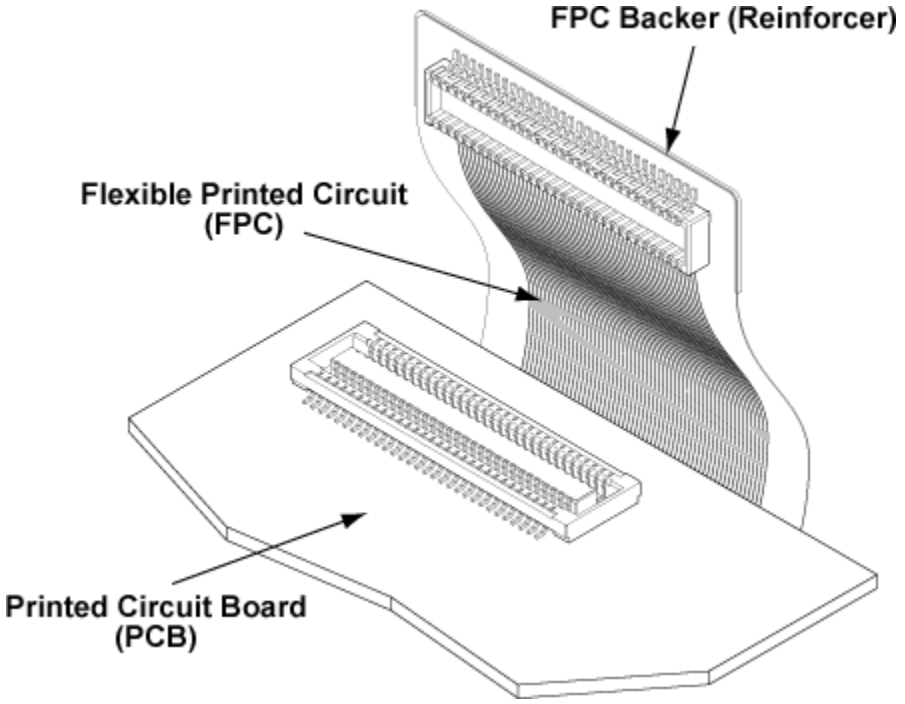
FPC Application

Although it is a conventional board-to-board system, the 0.50mm (.020") pitch SMT stacking BTB can also be used in FPC (flexible printed circuit) -to-Board applications (see illustration below).

The FPC-to-Board method provides:

- Double the circuit density of 0.50mm (.020") pitch ZIF FPC connectors.
- Excellent shock absorption between PCBs, due to the flexibility of the FPC.
- Extremely low profile connection - as low as 1.50mm (.059") between mating halves.
- Super reliable gold-on-gold contact system.
- Easy mating/unmating, when used with a strong FPC backer

This interconnection solution has found applications in a variety of portable equipment.



PRODUCT SPECIFICATION

LANGUAGE: JAPANESE / ENGLISH

[1.SCOPE **]**

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０.５mmピッチ基板対基板用

This specification covers the 0.5mm P.C. BOARD CONNECTOR series.

[2. PRODUCT NAME AND PART NUMBER **]**

Product Name	Part Number
Receptacle Housing Assembly	
Embossed Tape Package for 54722-***1	
Plug	
Embossed Tape Package for 55560-***1	
Receptacle Housing Assembly	
Embossed Tape Package for 54037-***2	
Plug	
Embossed Tape Package for 53794-***1	

* : Refer to the drawing.

REV.	E	E	E	E	E	E	E	E	E	E												
SHEET	1	2	3	4	5	6	7	8	9	10												

REVISE ON PC ONLY

REV.	DESCRIPTION
E	REVISED (2003/09/09) K.TOJO

TITLE: 0.5 BOARD TO BOARD Conn (Hgt=1.5)

DESIGN CONTROL	STATUS	WRITTEN BY:	CHECKED BY:	APPROVEDBY	DATE: YR/MO/DAY
J		S.AIHARA	T.ITO	M.FUKUSHIMA	2000/10/10

DOCUMENT NUMBER	FILE NAME	SHEET
PS-54722-009	PS54722009.LWP	1 OF 10

[3. RATINGS **]**

Item	Standard	
Rated Voltage(MAX.)	50 V	[AC (rms) / DC]
Rated Current(MAX.)	0.5 A	
Ambient temperature Range	– 25°C ~ + 85°C*1	

*1:
*1: Including terminal temperature rise.

[4. PERFORMANCE **]**

4 - 1. Electrical Performance

Item		Test Condition	Requirement
4-1-1	Contact Resistance	20mV 10mA (JIS C5402 5.4) Mate connectors,measure by dry circuit, 20mV MAX., 10mA. (JIS C5402 5.4)	40 milliohms MAX.
4-1-2	Insulation Resistance	DC 500V を (JIS C5402 5.2/MIL-STD-202 302) Mate connectors, apply 500V DC between adjacent terminal or ground. (JIS C5402 5.2/MIL-STD-202 Method 302)	100 Megohms MIN.

項　　目 Item		条　　件 Test Condition	規　　格 Requirement
4-1-3	Dielectric Strength	AC(rms) 500V1 (JIS C5402 5.1/MIL-STD-202 試験法 301) Mate connectors, apply 500V AC(rms) for 1 minute between adjacent terminal or ground. (JIS C5402 5.1/MIL-STD-202 Method 301)	No Breakdown

4 - 2. Mechanical Performance

項　　目 Item		条　　件 Test Condition	規　　格 Requirement
4-2-1	Insertion and Withdrawal Force	Insert and withdraw connectors at the speed rate of 25±3mm/minute.	Refer to paragraph 6
4-2-2	Terminal/ Housing Retention Force	25±3mm Apply axial pull out force at the speed rate of 25±3mm/minute on the terminal assembled in the housing.	0.98 N {0.1 kgf} MIN.

4 - 3. Environmental Performance and Others

項　　目 Item		条　　件 Test Condition	規　　格 Requirement	
4-3-1	Repeated Insertion/ Withdrawal	When mated up to 30 cycles repeatedly by the rate of 10 cycles per minute.	Contact Resistance	80 milliohms MAX.
4-3-2	Temperature Rise	(UL 498) Carrying rated current load. (UL 498)	Tempera-ture rise	30 °C MAX.
4-3-3	Vibration	Amplitude: 1.5mm P-P Sweep time: 10~55~10 Hz in 1 minute Duration: 2 hours in each X.Y.Z. axes (MIL-STD-202 Method 201)	Appearance	No Damage
			Contact Resistance	80 milliohms MAX.
			瞬　断 Dis-continuity	1 microsecond MAX.

Item		Test Condition	Requirement	
4-3-4	Shock	DC 1mA 490m/s sq{50G} (JIS C0041/MIL-STD-202 M213) 490m/s sq {50G}, 3 strokes in each X.Y.Z. axes. (JIS C0041/MIL-STD-202 Method 213)	Appearance	No Damage
			Contact Resistance	80 milliohms MAX.
			Discontinuity	1 microsecond MAX.
4-3-5	Heat Resistance	(JIS C0021/MIL-STD-202 M108) 85±2°C, 96 hours (JIS C0021/MIL-STD-202 Method 108)	Appearance	No Damage
			Contact Resistance	80 milliohms MAX.
4-3-6	Cold Resistance	(JIS C0020) –25±3°C, 96 hours (JIS C0020)	Appearance	No Damage
			Contact Resistance	80 milliohms MAX.
4-3-7	Humidity	Temperature: 40±2°C Relative Humidity: 90~95% Duration: 96 hours (JIS C0022/MIL-STD-202 Method 103)	Appearance	No Damage
			Contact Resistance	80 milliohms MAX.
			Dielectric Strength	Must meet 4-1-3
			Insulation Resistance	100 Megohms MIN.

Item		Test Condition	Requirement	
4-3-8	Temperature Cycling	(JIS C0025) 5 cycles of: a) – 55°C 30 minutes b) + 85°C 30 minutes (JIS C0025)	Appearance	No Damage
			Contact Resistance	80 milliohms MAX.
4-3-9	Salt Spray	(JIS C0023/MIL-STD-202 試験法101) 48±4 hours exposure to a salt spray from the 5±1% solution at 35±2°C. (JIS C0023/MIL-STD-202 Method 101)	Appearance	No Damage
			Contact Resistance	80 milliohms MAX.
4-3-10	SO_2 Gas	24 hours exposure to 50±5ppm. SO_2 gas at 40±2°C.	Appearance	No Damage
			Contact Rsistance	80 milliohms MAX.
4-3-11	NH_3 Gas	40 minutes exposure to NH_3 gas evaporating from 28% Ammonia solution.	Appearance	No Damage
			Contact Rsistance	80 milliohms MAX.
4-3-12	Solderability	Soldering Time: 3±0.5second Solder Temperature: 230±5°C	Solder Wetting	95% of immersed area must show no voids, pin holes.

Item		Test Condition	Requirement	
4-3-13	Resistance to Soldering Heat	(When reflowing) Refer to paragraph 7	Appearance	No Damage

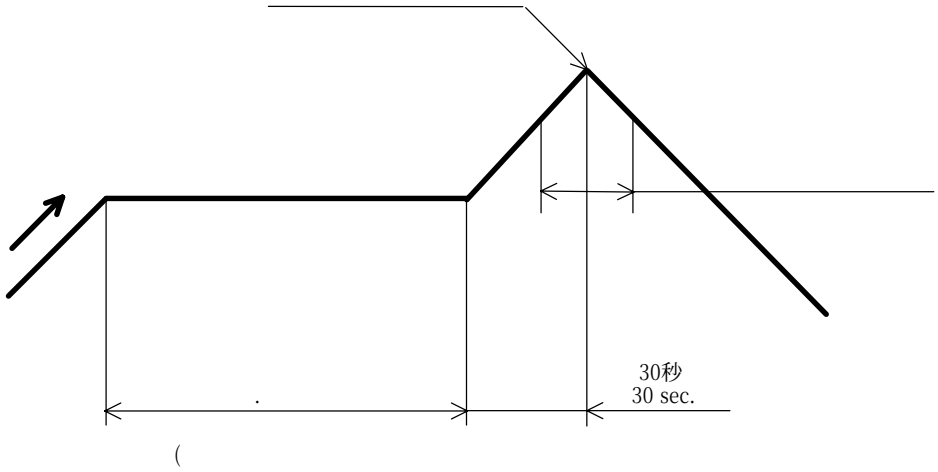
( ) : Reference Standard
{ } : Reference Unit

[5. PRODUCT SHAPE, DIMENSIONS AND MATERIALS **]**
Refer to the drawing.

[6. INSERTION/WITHDRAWAL FORCE **]**

No. of CKT	UNIT	Insertion (MAX.)			Withdrawal (MIN.)		
		1st	6th	30th	1st	6th	30th
20	N {kgf}	49.0 {5.0}	49.0 {5.0}	49.0 {5.0}	6.90 {0.70}	4.90 {0.50}	4.90 {0.50}
24	N {kgf}	49.0 {5.0}	49.0 {5.0}	49.0 {5.0}	6.90 {0.70}	4.90 {0.50}	4.90 {0.50}
30	N {kgf}	49.0 {5.0}	49.0 {5.0}	49.0 {5.0}	6.90 {0.70}	4.90 {0.50}	4.90 {0.50}
34	N {kgf}	49.0 {5.0}	49.0 {5.0}	49.0 {5.0}	6.90 {0.70}	4.90 {0.50}	4.90 {0.50}
40	N {kgf}	49.0 {5.0}	49.0 {5.0}	49.0 {5.0}	6.90 {0.70}	4.90 {0.50}	4.90 {0.50}
46	N {kgf}	49.0 {5.0}	49.0 {5.0}	49.0 {5.0}	6.90 {0.70}	4.90 {0.50}	4.90 {0.50}
50	N {kgf}	49.0 {5.0}	49.0 {5.0}	49.0 {5.0}	6.90 {0.70}	4.90 {0.50}	4.90 {0.50}
60	N {kgf}	49.0 {5.0}	49.0 {5.0}	49.0 {5.0}	6.90 {0.70}	4.90 {0.50}	4.90 {0.50}
80	N {kgf}	49.0 {5.0}	49.0 {5.0}	49.0 {5.0}	6.90 {0.70}	4.90 {0.50}	4.90 {0.50}

[7. INFRARED REFLOW CONDITION**]**



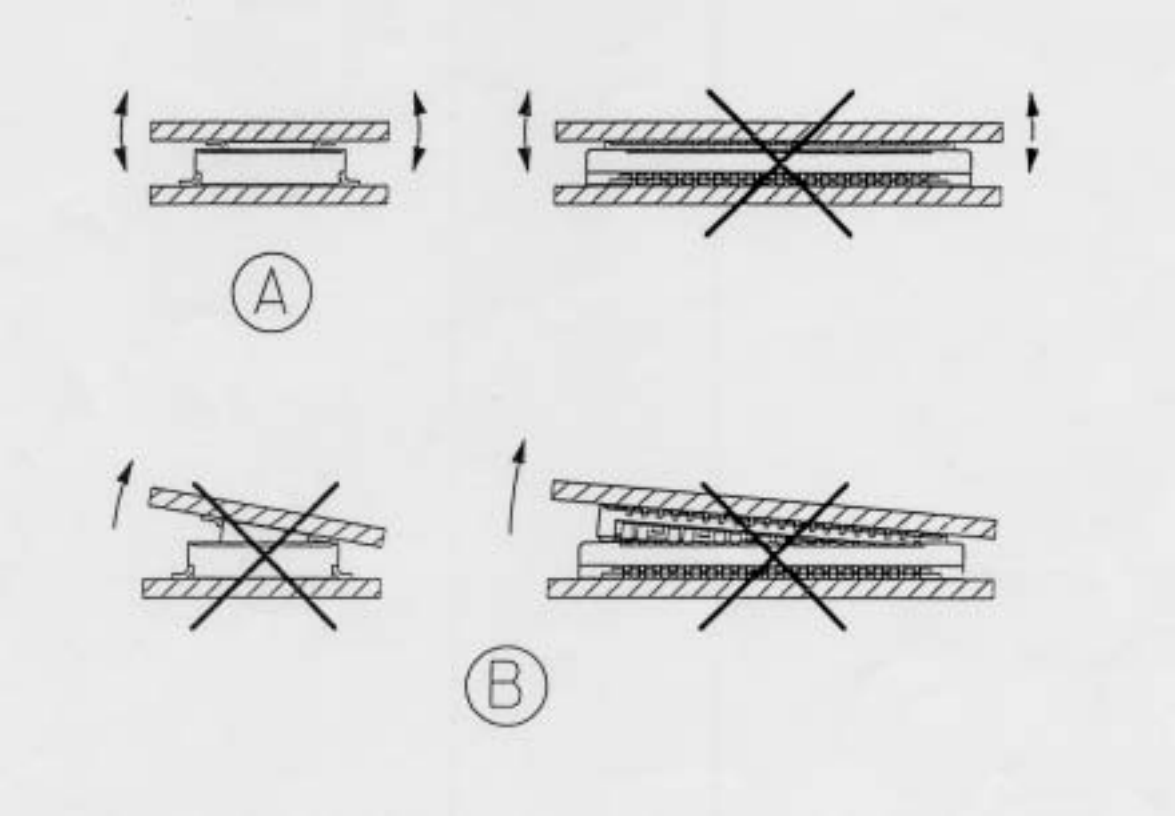
TEMPERATURE CONDITION GRAPH
(TEMPERATURE ON BOARD PATTERN SIDE

NOTE:Please check the mount condition (reflow soldering condition) by your own devices beforehands.
Because the condition changes by the soldering devices , P.C.Boards , and so on.

[8. INSTRUCTION UPON USAGE]

As regards extraction is straight at mating axis to the utmost , or swing right to left slightly. (direction of following figure A)

(Please take care of excess twist extraction. [refer to following figure B])



PRODUCT SPECIFICATION

LANGUAGE: JAPANESE ENGLISH

REV.	REV. RECORD	DATE	EC NO.	WRTTN:	CH'K:
A	RELEASED	'00/10/10	JC2001-0253	S.AIHARA	T.ITO
B	REVISED	'01/02/13	JC2001-0666	S.AIHARA	T.ITO
C	REVISED	'01/05/14	JC2001-0901	S.AIHARA	T.ITO
D	REVISED	'02/08/01	J2003-0324	T.YASUI	T.ITO
E	REVISED	'03/09/09	J2004-0549	K.TOJO	S.MARUYAMA

REVISE ON PC ONLY

REV.	DESCRIPTION
E	REVISED (2003/09/09) K.TOJO

TITLE: 0.5 BOARD TO BOARD Conn (Hgt=1.5)

DOCUMENT NUMBER: **PS-54722-009**

FILE NAME: PS54722009.LWP